



**PROGRAMMABLE DIESEL TACHOMETER
INSTRUCTION BOOKLET**



SEE INSIDE COVER FOR ENGINE SPECIFIC INSTALLATIONS



[TECH TIP: FORD DIESEL
IDI AND POWERSTROKE](#)



[TECH TIP: CUMMINS
INSTALLATIONS](#)



[TECH TIP: GM
DURAMAX/GM PCM](#)

THE BACK OF YOUR GAUGE PROGRAMMABLE WITH OLED SCREEN AND PORTS

All programmable speedometers and tachometers with an OLED screen of any size are master gauges that can drive minor functions. The minor gauges are driven directly by the master and no additional connections are required.

AMP PLUG SOCKET :

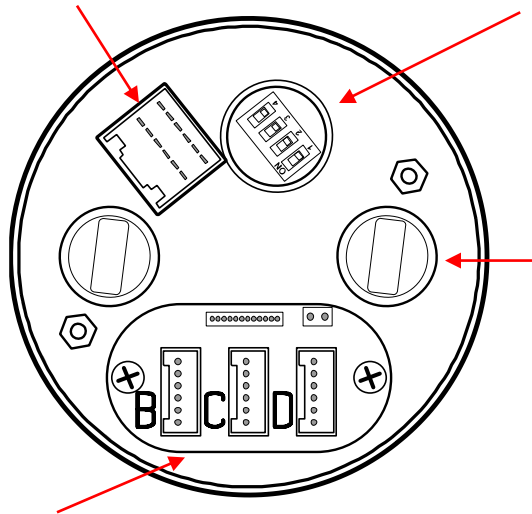
USE the NVU universal AMP plug and wire as shown in the proper diagram. NVU uses the same plug for all gauges so some wires may not be used in your application.

DIP SWITCHES:

Used to adjust fuel range on speedometers. See fuel gauge chart later in this booklet. Remove the black plastic cover to access this if needed. See DIP switch settings later in this booklet

LIGHT SOCKETS:

The sockets hold NVU bright white LED 194 bulbs. They are replaceable if needed. If you need to replace a bulb, the LEDs are polarity sensitive and have to be installed properly to operate. If you find the bulb will not light, turn it 180 degrees and reinstall. LEDs are not dimmable using a standard dimmer. Wire into your parking lamp circuit and use an LED dimmer if required



DRIVER SOCKETS:

This applies to 5 and 6 gauge kits with NVU PNP technology. 2, 3 and 4 gauge kits will not use the driver features. Refer to each wiring diagram. Plug the appropriate gauge into the socket and it will function through the master driver unit.

The B, C and D pins are used to connect the 2-1/16" gauges through the master gauge. All functions and lighting are done through this plug. Refer to the wiring diagram for each kit for proper wiring. Below is each plug's function and its corresponding input wire color. Pins C and D are the same on the speedo and tach.

SPEEDOMETER:

B: PROGRAMMABLE FUEL (GREEN WIRE) Connects to your fuel sender. The input is programmable, please see the fuel gauge DIP switch settings on page 34

C: WATER TEMPERATURE (YELLOW/GREEN WIRE) Connects to the NVU temperature sender.

D: OIL PRESSURE (YELLOW WIRE) Connects to NVU pressure sender .

TACHOMETER:

B: VOLTS No input wire required, internal to gauge

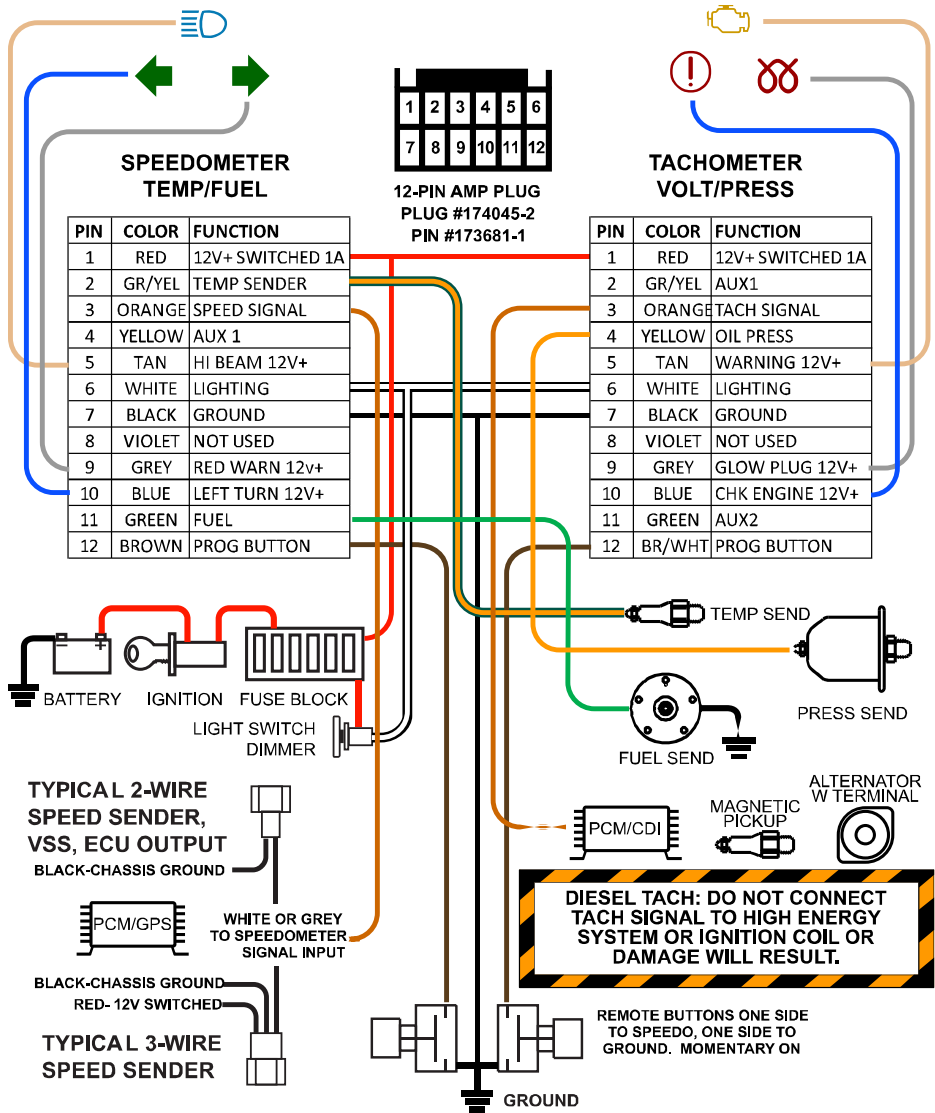
C: WATER TEMPERATURE (YELLOW/GREEN WIRE) Connects to the NVU temperature sender.

D: OIL PRESSURE (YELLOW WIRE) Connects to NVU pressure sender .

6 GAUGE KIT PROGRAMMABLE SPEEDO AND TACHOMETER WITH OLED SCREENS

MASTER GAUGE WIRING

All programmable speedometers and tachometers with an OLED screen of any size are master gauges that can drive minor functions. The minor gauges are driven directly by the master and no additional connections are required. Wire as shown below and plug the minor gauges into their appropriate plug (B,C,D) on the back of the master gauge.

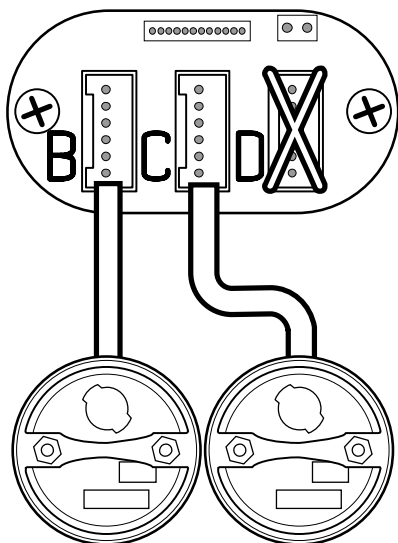


MINOR GAUGE WIRING 6 GAUGE KIT

All programmable speedometers and tachometers with an OLED screen of any size are master gauges that can drive minor functions. The minor gauges are driven directly by the master and no additional connections are required. Wire as shown below and plug the minor gauges into their appropriate plug (B,C,D) on the back of the master gauge.

Follow the diagram below to properly plug the minor gauges into the master units.

SPEEDOMETER TEMP/FUEL

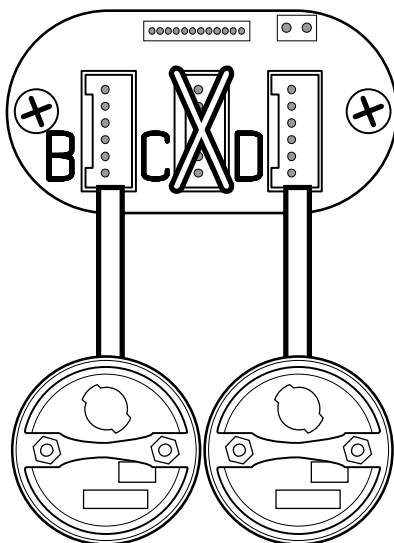


B: FUEL

C: TEMP

**SET RANGE ON SPEED
DIP SWITCHES**

TACHOMETER VOLT/PRESS



B: VOLT

D: PRESS

The B, C and D pins are used to connect the 2-1/16" gauges through the master gauge. All functions and lighting are done through this plug. Refer to the wiring diagram for each kit for proper wiring. Below is each plug's function and its corresponding input wire color. Pins C and D are the same on the speedo and tach.

SPEEDOMETER:

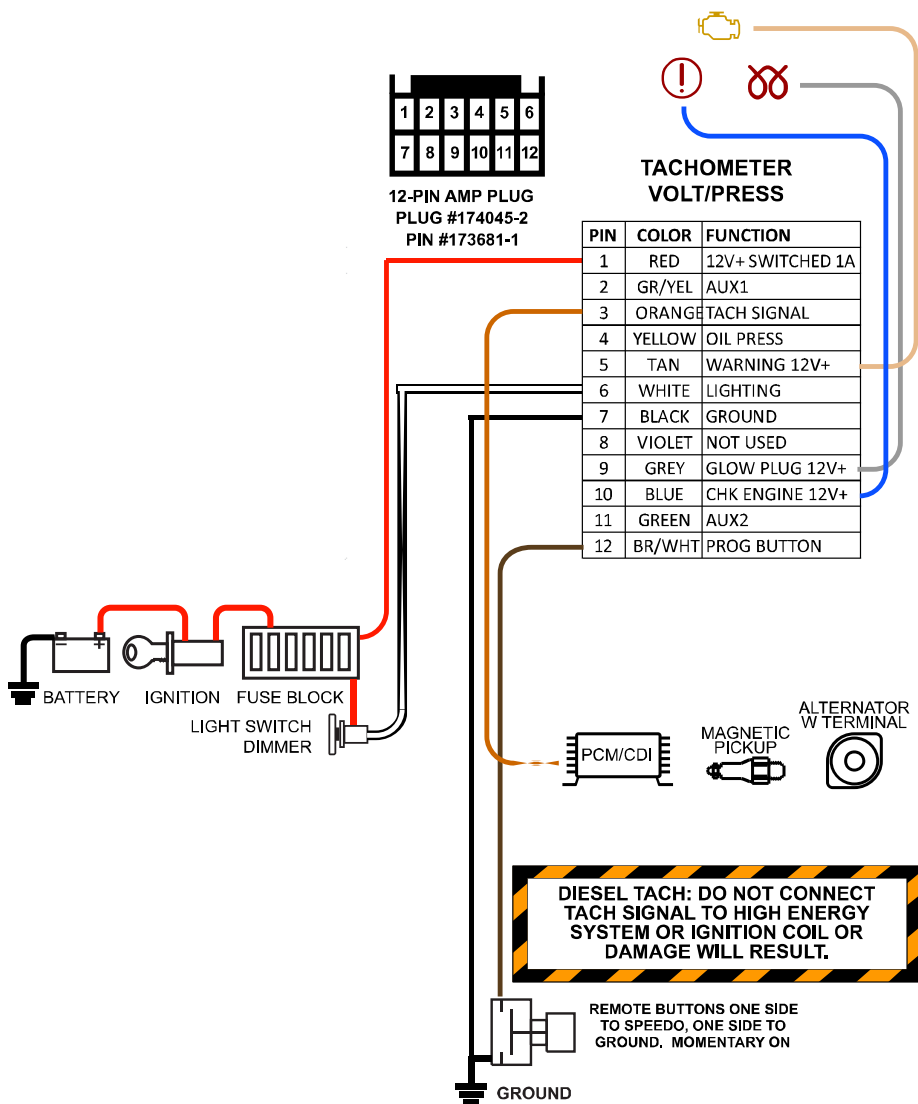
B: PROGRAMMABLE FUEL (GREEN WIRE) Connects to your fuel sender. The input is programmable, please see the fuel gauge DIP switch settings later on page 34
C: WATER TEMPERATURE (YELLOW/GREEN WIRE) Connects to the NVU temperature sender.

TACHOMETER:

B: VOLTS No input wire required, internal to gauge
D: OIL PRESSURE (YELLOW WIRE) Connects to NVU pressure sender .

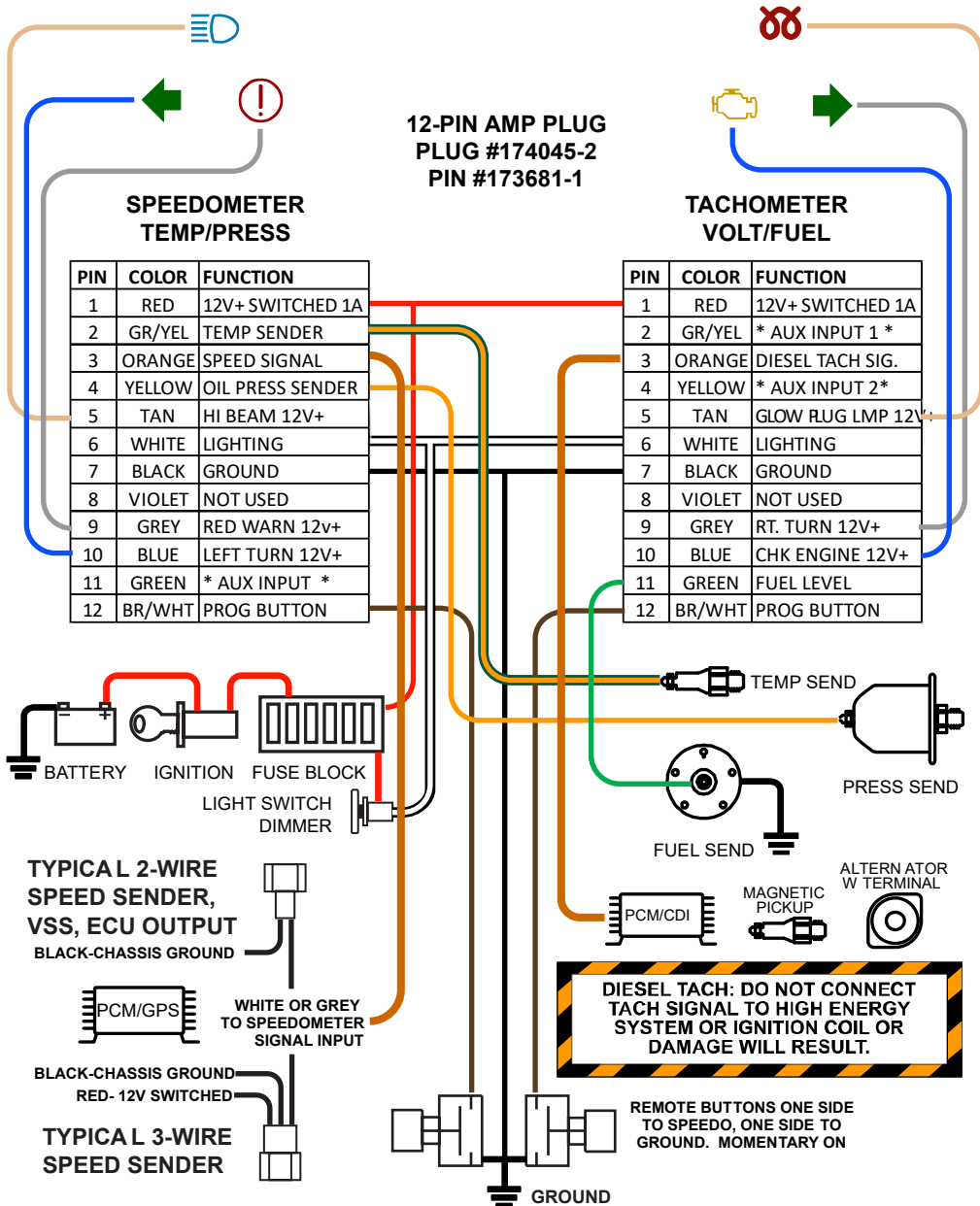
PROGRAMMABLE TACHOMETER WIRING

Standalone tachometers with AMP plugs are incandescent perimeter, backlit or LED backlit. Incandescent bulbs will be in the access holes installed into the circuit board. DIP-switch settings are not required on tachometers. 3-3/8" and 4-3/8" are the same configuration.



3-1 GAUGES

Standalone tachometers with AMP plugs are incandescent perimeter, backlit or LED backlit. Wires the same as in your BIG BOOK except the tach input is on the ORANGE wire and we have replaced the triangle icon with a GLOW PLUG Icon.



INSTALLATION BASICS:

- Use a minimum of 20 gauge insulated, stranded wire, all connections should be connected with a crimp connection or solder and heat shrink.
 - Keep speed signal wire(s) away from potential “noise” sources like ignition wires, tach signal wires, fan motors, pumps etc.
 - Studded speedometers use #8 studs, use applicable eye terminals for wiring.
 - Use a maximum of 5A fuse for the entire cluster, this is usually already in your fuse block
- Commonize wiring, ground, power and lights can be common on all gauges and “daisy chained”

OLED DISPLAY TACHOMETERS WITH ANALOG POINTERS

With all of the features packed into NVU Phoenix platform tachometers, we have divided them into different menus. Your tach has a main “RUN” Menu, and a “SETUP” menu. The RUN menu utilizes the features used during normal operation. The SETUP menu stores all of the items that are setup during the installation process. Items can be changed any time after, if desired, and are separate to prevent inadvertently changing them during normal use.

RUN Menu Functions

Features can be accessed in the run menu during normal operation with the key on. To scroll to the various displays in the OLED screen, use a short push or tap of the remote button.

BLANK SCREEN: We have included a blank screen option to give the user an opportunity to not display any information.



HOURLMETER: Displays the total hours the vehicle has been running. This is not resettable. This function is useful to track servicing the vehicle especially when idling for long periods is common such as in commercial, fleet and emergency vehicles, or when a speedometer or odometer is not used in the vehicle.



RUN MENU-CONTINUED

SERVICE HOURS: User resettable hourmeter to track engine use similar to a trip odometer. It is identified by the SH on the left side of the screen



This can be reset just like a trip odometer, while in this screen hold down the set button until zero is displayed. The hours will count up from there. This can be reset at any time and can also be used for tracking time to a destination as well as servicing the vehicle.



PEAK RPM is displayed on the following screen. This will store and allow the user to view the peak RPM achieved since the last reset.



This can be reset any time by holding in the programming button until all zeros are displayed. This may be reset at any time and the last peak RPM will be stored until reset.



BOOT or SETUP MENU. This area of the tachometer is used during set-up and any of the settings can be changed at any time. The items in the setup menu are “hidden” in this sub-menu to avoid inadvertently changing settings during normal use. To enter the setup menu, hold in the button while turning on the key (you do not have to start the vehicle if you do not want to). The setup menu screen will be displayed. To exit the setup menu, turn the key off, and restart normally.



BOOT MENU, CONTINUED

MANUAL CALIBRATE: Allows the user to set the tachometer to accommodate different number Pulses received from the input source. It is selectable from 2-180 PPR (pulses Per revolution). To enter manual calibration mode, enter the setup menu and scroll to MANUAL CALIBRATE

MANUAL
CALIBRATE

To set the number of PPR, Tap the button to advance the digit. Hold the button for 1 second to advance to the next digit and repeat the process. At the end of the last digit, hold the button until Y/N appears. Select Y for yes, No for no. A successful programming will appear with your set PPR and SAVED! You must restart the unit for settings to take effect.

138



138



138
SET Y/N



138
SAVED!

INPUT FILTER. Generally this setting does not require and adjustment. You may change the settings if you are having difficulty with noise in your signal or sharp spikes. To enter the filter mode, hold in the button until the settings are shown. There are 3 options low "L" medium "M" and high "H". You can experiment to see if the filters aid your signal. The changes can be made with the vehicle running so you can see the difference in settings.

To change the setting, scroll to L, M or H and hold in the button. Once you are at the desired setting, hold in the button until the confirmation message is displayed, and select Yes or NO, hold in the button to select. SAVED! will confirm the setting has been changed and now the filter is set.

INPUT
FILTER



SET
FILTER M



SET? YES?



SAVED!

SHIFT ALERT. The shift alert is built-into the OLED display and will give the driver a warning of when to shift based on RPM. The alert is a 3 stage display, warning 1,000 and 500 RPM before the shift point, and the actual shift point. This can be used to pre-set shift points for optimal horsepower, mileage or to prevent over-revving the engine, it is up to the driver to decide how they would like it to be set up. The shift alert can also be disabled by setting to zero RPM.

BOOT MENU, CONTINUED

SHIFT ALERT, CONTINUED. To enter the shift alert menu, hold in the button while at the screen.

The current shift point will be displayed (0000 for no shift alert). Tap the button to change the first digit which will be highlighted. Each tap will advance the digit by one number.

Hold the button in to advance to the next digit and follow the same sequence until you have the desired setting.

At the last digit, once satisfied, hold in the button to enter the verification menu.

Select YES or NO and hold in the button. Once saved, the display will show the current shift setting and SAVED!



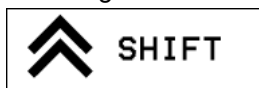
HOW THE SHIFT ALERT DISPLAYS INFORMATION: This is active all of the time when in any menu window during normal operation. For the setting above, 5,500 RPM, the display will indicate the engine is 1,000 RPM before the shift point with a single arrow on the screen:



500 RPM before the shift point 2 arrows will be displayed:

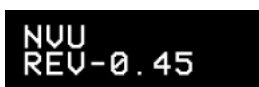


At the desired, set shift point, the screen will invert creating a highly visible sign that the engine is at the RPM designated to shift, the word SHIFT will display:



The arrows will operate in the inverse as RPM decreases. The shift point setting can be changed at any time desired, or disabled by setting the shift alert to all zeros (0000).

PROGRAM VERSION. This displays the current software version installed in the unit.



TACHOMETER SIGNALS

Where do I pick up my diesel tach signal?

There are several places to pick up the signal NOTE: **DO NOT SPLIT THE SIGNAL ON A 2-WIRE SENSOR.**

Start with the filter on low and see how it goes. The tachs are set at 5PPR to start.

GM Duramax: Exactly the same as an LS engine from the PCM, check out our tech blog on this subject OR the Phoenix Big book section on tach signals and LS instructions. All GM PCMs output a 4 cylinder signal. **That means set your tachometer to 2PPR** (2 pulses Per revolution = 4 cylinder signal on 4-stroke engines). You will also need to 10KΩ resistor from the tach card in the kit.

MOST VEHICLES WITH A CLUSTER THAT HAD A TACHOMETER:

Use the tach feed, you may have to play around with the input signal and PPR. Let u sknow what you find out so we can add more info as it comes in for your friends trying to do a similar install.

Most other engines without a PCM:

Crank sensor: Usually on the back of the block, this counts the number of teeth on the flywheel, this is the most reliable and easy to adapt if no other sensor is available. Its basically a speed sender for your engine. There are also instances where the sensor is on the front of the engine and picks up on a toothed wheel behind the crank pulley.

Cam sensor: Typically, on the front or back of the head.

Injector pump: Sometimes the pump will have a signal out or you can piggyback from one of the trigger wires.

OE tach feed to the instrument cluster.

CUMMINS:

All of the Cummins have a tach output on the PCM no matter how rudimentary the box is. Start at 8PPR as most have that as the output.

FORD DURAMAX:

Ford moved the wire all over the place, best bet is to review the vehicle wiring diagram or a remote start diagram to find the exact wire, its in there though!

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THANK YOU

Thank you for choosing NVU products. We strive to provide the finest quality and designed products available on the market.

TECH SUPPORT

DO NOT contact the retailer for tech/installation assistance. The retailer will not have the technical expertise to know the contents of the kit or the nuances of installing in your specific vehicle. We are here to help!

Contact NVU directly, our qualified installation technicians have the knowledge of the product and its installation to help you get going right away.

If you need technical assistance please feel free to call us at 248.850.5482 or email us at service@newvintageusa.com

NVU 5-YEAR WARRANTY

Service can be obtained during the normal warranty period by contacting New Vintage and obtaining a Return Authorization Number (RZA#). New Vintage will repair or replace any item found to be defective and return ship to no cost via ground or post office services. Other shipping/international services will be applied at additional cost. Buyer is responsible for shipping to New Vintage for warranty repair. Return shipping will be the responsibility of the customer if the product is found to be damaged or out of warranty. An RZA number must be obtained and proper return/warranty form accompanied with the product.

MISSING ITEMS/RETURNS

Hey, we all make mistakes, no problem just give us a call if you believe that you are missing something in the box. DO NOT CONTACT THE RETAILER, as they will not have the complete packing list or the pertinent information to properly help you. We will take care of it for you.

Missing items/returns must be processed within 15 days of end user receiving the product. All returned must be shipped back to the place of purchase. Any return shipping costs to New Vintage are the responsibility of the purchaser. An RZA number must be obtained and proper return/warranty form accompanied with the product. A restocking fee not to exceed 10% may be applied to items that must be repackaged. Any item returned in a non-usable condition will be returned or charged to the customer.

Missing items must be reported within 15 days of receiving the product. Items found to be missing will be shipped via ground or postal service at no charge. Expedited/international shipping options are available at an additional charge. It is the policy of New Vintage to quickly replace any items that may be missing in a timely manner but not to overnight or expedite shipping in any way at no cost.



NEW VINTAGE USA
2415 BURDETTE
FERNDALE, MI 48220
VOICE: 248.850.5482
FAX: 248.565.8291

www.newvintageusa.com